A DIMORPHIC SPECIES OF ACTALETES (COLLEMBOLA)

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ABSTRACT

Males of *A. calcarius* (Actaletidae), Jamaica, have distinctive leg appendages. The other known sp. of this littoral family is European.

Actaletes calcarius new species

Facies (fig. 1) typical of the family, i.e. isotomoid but with highly modified abdominal segmentation and extreme posterior displacement of the furcula. Color in alcohol dark gray-brown. Length of largest specimens (position as in fig. 1) slightly over 1 mm. Body covered with numerous short setae, all simple except as noted below.

Antennae slightly shorter than head (in smallest specimens) to more than three times head length (large males). First segment always the shortest and thickest; segments increase in length distally in smallest specimens, but the second and third segments are much the longest in adults. First three segments subcylindrical, fourth segment faintly curved or S-shaped. Most setae shorter than antennal width, but a few much longer setae on terminal segments, especially in large males (fig. 2). A few differentiated setae in apical half of fourth segment: some short, straight, and blunt, some apically curved and tapering. Apical seta basally expanded. Sense organ of third segment has two blunt pegs in a common groove; no differentiated guard setae visible. A flat conical lobe, shorter than most setae, projects from the dorsal apex if the second segment over the base of the third segment.

Head hypognathous. Antennal bases differentiated, without setae. Postantennal organ oval, of isotomid type, somewhat smaller than anterior eye. Eight eyes on each side, the posterior three in a slightly separated group; medial eye in each group about two-thirds the size of the others.

First thoracic segment reduced dorsally, without setae. Second tergite slightly longer than third.

Leg segmentation normal. Unguis (fig. 4) has weak inner and lateral teeth at about half its length. Unguiculus tapering, with a large, sharply angled inner lobe. A very thin, tapering, scale-like projection extends above the unguis from just before its base nearly to the tip (apparently this is easily detached). Setae numerous, mostly shorter than diameter

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of leg segments. In males, on the first pair of legs the tibiotarsus bears two or three heavy spines on its inner surface, longer than the segment width and over twice the thickness of the ordinary setae; the femur bears two to four somewhat weaker spines on its inner surface. Also in males, the tibiotarsus of the third pair of legs bears a leaf-like projection with three long setae (figs. 3, 5).

Abdominal segmentation (see fig. 1) highly modified; last three segments fused, and dorsal portion of last two visible only on posterior face of abdomen. The furcula articulates with two dorsolateral, rod-shaped, tapering sclerotizations extending forward the length of the fourth abdominal segment, and two ventral sclerotizations of about the same length but thicker and knobbed at the anterior end.

Rami of tenaculum have four teeth. Corpus has five setae, the three distal setae being enlarged.

Manubrium has numerous setae, but basal half of anterior surface and median area on both surfaces bare. Dentes (fig. 6) have numerous setae, those on inner and outer surfaces being especially long (up to more than twice the width of the dens). On the dorsal surface are a number of blunt spines: one near base, a pair at about one-third the length, and two rows in the distal half; commonly seven in the inner row and four in the outer. Mucro (fig. 7) tridentate; apex weakly upturned; anteapical tooth in line, with posterior and two anterior lamellae; basal tooth displaced laterally, with anterior, posterior, and inner lamellae. A mucronal seta on the external surface basally.

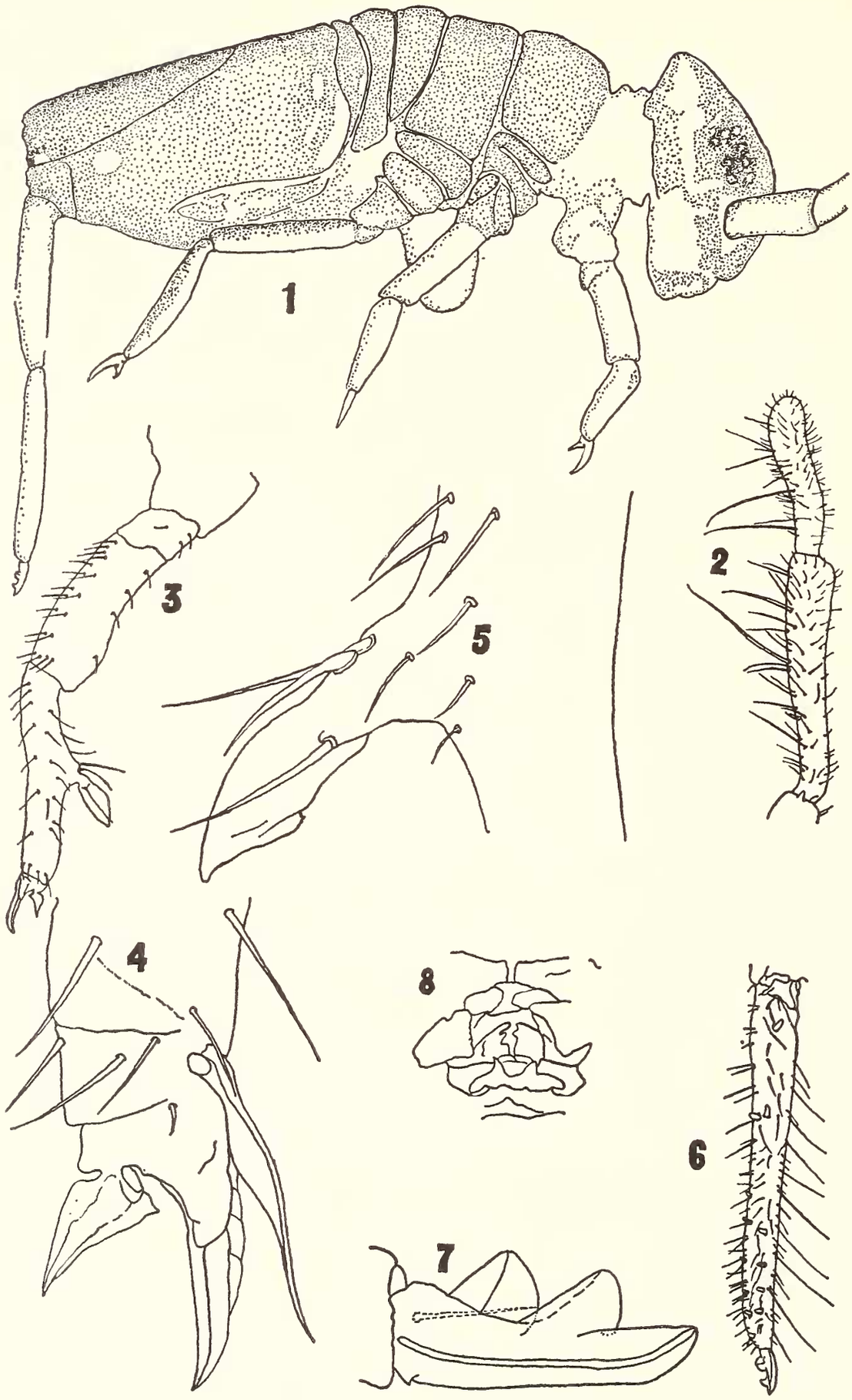
Genital opening on extreme posterior surface of abdomen. Female opening a transverse slit, without associated setae; male opening (fig. 8) complex and difficult to interpret.

HOLOTYPE male and ALLOTYPE female Lazaretto Beach, St. Catherine Parish, Jamaica, on wave-splashed vertical limestone cliff at water's edge, 21 June 1956.

PARATYPES 7 males, 40 females, and 35 immature specimens of uncertain sex: same locality, 13, 18, 21 June and 4, 6, 7 July 1956.

The holotype and allotype will be deposited in the British Museum (Natural History). Paratypes will be deposited in the Museum of Comparative Zoology, Cambridge, Mass., and in the Institute of Jamaica, Kingston; others are in the author's collection.

I have not been able to obtain material of the only other known species of Actaletidae, *A. neptuni* Giard, for comparison. Judging from the figures given by Willem, 1900, 1901, and Strenzke, 1955, the new species differs from *A. neptuni* unequivocally in having the anteapical and basal mucronal teeth in tandem instead of side by side. Other apparent differences are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the presence of spines on the dentes, and the conspicuous sexual dimorphism; it is possible, if unlikely, that these characters are present in the European species but have been overlooked.

Measurements of head length on all available specimens show a number of discrete size classes, suggesting that there are three or four juvenile instars and that the distinctive male characteristics of the first and third legs appear abruptly in the following instar, probably together with sexual maturity. Collembola of course have imaginal molts, and the later adult instars evidently are larger and have an increasing ratio of antennal length to head length. Large males can be recognized at once by the very elongate antennae, and even in the smallest recognizable male the ratio antenna/head is over 2:1, while it never attains this value in the largest females.

A. neptuni is known only from the northern coast of France and Belgium; the occurrence of the new species in the Caribbean is most unexpected. However, the littoral Collembola of most parts of the world are poorly known, and the family may yet turn out to be more widely distributed.

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EXPLANATION OF PLATE

FIG. 1. Adult female, entire, × 50.
FIG. 2. Third and fourth antennal segments of male, dorsal, × 100.
FIG. 3. Distal part of third leg, adult male, × 100.
FIG. 4. Third unguis, × 600.
FIG. 5. Projection on third tibiotarsus of adult male, × 600.
FIG. 6. Dens and mucro, dorsolateral, × 100.
FIG. 7. Mucro, internal surface, × 600.
FIG. 8. Male genital area, × 225.